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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/584,191

06/23/2006

Takeki Shirai

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EXAMINER

WAITS, ALAN B

ART UNIT

PAPER NUMBER

3656

NOTIFICATION DATE

DELIVERY MODE

03/10/2011

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentmail@whda.com

Office Action Summary	Application No. 10/584,191	Applicant(s) SHIRAI ET AL.	
	Examiner ALAN B. WAITS	Art Unit 3656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 December 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 5-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 5-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 March 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobs U.S. 4,974,969 in view of Teramachi U.S. 4,629,337.

Re clm 1, 2, 6 and 8, Jacob discloses an actuator comprising a hollow track member (1, Fig. 1) having a slit (bottom of 1) extending in an axial direction thereof, a movable member (2, Fig. 2) disposed inside the track member to be movable along the track member, a drive mechanism (col. 2, line 25-35) for moving the movable member along the axial direction of the track member, the track member has in a section perpendicular to the axial direction of the track member a guide portion (portion where balls touch 2 and 1, Fig. 2) for guiding movement of the movable member and at least two extensions (portion of 1 below the horizontal diameter, Fig. 1) opposing to each other, each of the extensions extending from the guide portion so as to cover the movable member, the slit is formed between the opposing extensions, a width of the slit of the track member is narrower than a width of the movable member, an entire exposed outer periphery of the track member has a substantially circular-arc shape in the section, the track member is formed with a plurality of rolling member rolling grooves (8, Fig. 2) extending in the axial direction thereof as the guide portion, a number of

rolling member (4, Fig. 2) are interposed between the rolling grooves of the track member and the movable member to be rollable therebetween.

Jacobs does not disclose that the movable member is formed with a plurality of loaded rolling member rolling grooves opposing to the rolling member rolling grooves, the movable member has both side surfaces to each of which two rows of the loaded rolling member rolling grooves are formed, the two rows of loaded rolling member rolling grooves extend in the axial direction of the track member, and a first row of the two rows of the loaded rolling member rolling grooves is positioned in vertical direction with respect to a second row of the two rows of the loaded rolling member rolling groove.

Teramachi teaches loaded rolling member rolling grooves (21, Fig. 1B) opposing the rolling member rolling grooves (11), the movable member has both side surfaces (Fig. 1A) to each of which two rows of the loaded rolling member rolling grooves are formed, and the two rows of loaded rolling member rolling grooves extend in the axial direction of the track member.

It would have been obvious to one of ordinary skill at the time of the invention to modify the teachings of Jacobs and provide that the movable member is formed with a plurality of loaded rolling member rolling grooves opposing to the rolling member rolling grooves, the movable member has both side surfaces to each of which two rows of the loaded rolling member rolling grooves are formed, and the two rows of loaded rolling member rolling grooves extend in the axial direction of the track member for the purpose of preventing relative radial motion between the track member and the movable member.

The combination of Jacobs with Teramachi would further necessarily disclose a first row (5, Fig. 1 of Jacobs; 11, Fig. 1A of Teramachi) of the two rows of the loaded rolling member rolling grooves is positioned in vertical direction with respect to a second row (left 9, Fig. 1 of Jacobs; row below 11, Fig. 1A of Teramachi) of the two rows of the loaded rolling member rolling groove since the rows of rolling members already exist in Jacobs.

Re clm 2, Jacobs further discloses that the slit is formed at only one portion in a circumferential direction of the track member in a section perpendicular to the axial direction of the track member.

3. Claims 1, 2 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagai U.S. 2002/0144561 in view of Jacob U.S. 4,974,969.

Re clm 1, 6 and 8, Nagai discloses an actuator comprising a hollow track member (12a, 12b and 12c, Fig. 2) having a slit (top section between walls 12b and 12c) extending in an axial direction thereof, a movable member (18) disposed inside the track member to be movable along the track member, a drive mechanism (28) for moving the movable member along the axial direction of the track member, the track member has in a section perpendicular to the axial direction of the track member a guide portion (portion where balls 76 touch 12c and 18, Fig. 3) for guiding movement of the movable member and at least two extensions opposing to each other, the slit is formed between the opposing extensions (12b and 12c, Fig. 2), the track member is formed with a plurality of rolling member rolling grooves (60a and 60b, Fig. 3) extending in the axial direction thereof as the guide portion, the movable member is formed with a

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plurality of loaded rolling member rolling grooves (62a and 62b, Fig. 3) opposing to the rolling member rolling grooves respectively, the movable member has both side surfaces to each of which two rows (60a, 60a, 60b and 60b, Fig. 9) of the loaded rolling member rolling grooves are formed, a number of rolling members (76, Fig. 3) are interposed between the rolling member rolling grooves of the track member and the opposing loaded rolling member rolling grooves of the movable member respectively to be rollable therebetween (Fig. 3 and 9), the two rows of the loaded rolling member rolling grooves extend in the axial direction of the track member (Fig. 9), and a first row (top 60a and 60b, Fig. 9) of the two rows of the loaded rolling member rolling grooves is positioned in vertical direction with respect to a second row (bottom 60a and 60b, Fig. 9) of the two rows of the loaded rolling member rolling grooves.

Nagai does not disclose that each of the extensions extending from the guide portion cover the movable member, a width of the slit of the track member is narrower than a width of the movable member, and an entire exposed outer periphery of the track member has a substantially circular-arc shape in section.

Jacob teaches track (2, Fig. 2b) and movable member (1, Fig. 1) where the outer member has extensions (lower portions of 1 that extend below the horizontal diameter of 1, Fig. 1) extending from guide portion to covering the inner member, a width of the slit (gap between the lower ends of 1, Fig. 1) of the outer member is narrower than a width (diameter of 2, Fig. 1 and 2) of the inner member, and an entire exposed outer periphery of the outer member has a substantially circular-arc shape in section.

Since both Nagai and Jacob teach a track and movable member, it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the shapes of the inner and outer members of Jacob into the device of Nagai and provide each of the extensions extending from the guide portion so as to cover the movable member, a width of the slit of the track member is narrower than a width of the movable member, and an entire exposed outer periphery of the track member has a substantially circular-arc shape in section to achieve the predictable result of better protecting the inner moving member from foreign debris and other machine parts as well as to more evenly distribute the load between the track member and the movable member.

Re clm 2, Nagai further discloses that the slit is formed at only one portion in a circumferential direction of the track member in a section perpendicular to the axial direction of the track member (Fig. 3 and 9).

Re clm 7, Nagai further discloses the drive mechanism being provided with a screw portion (32, Fig. 2) formed to the movable member and a screw shaft (28) to be screw engaged with the screw portion, the screw shaft penetrating the movable member, the screw shaft having a center line coincident with a center line of an output shaft of a drive source (14) rotating the screw shaft, and the drive source has an outer substantially circular shape in a section perpendicular to the axial direction of the track member.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagai U.S. 2002/0144561 in view of Jacob U.S. 4,974,969 as applied to claim 1 and 2 above, and further in view of JP 61-29163.

Nagai in view of Jacob discloses all the claimed subject matter as described above.

Re clm 5, Nagai in view of Jacob does not disclose that the track is provided with a cover member expandable and contractible in the axial direction of the track member so as to entirely cover the track member in the section perpendicular to the axial direction of the track member, and a portion of the movable member projecting over the slit of the track member penetrates the cover member.

JP163 teaches an actuator comprising a track member being provided with a cover member (16, Fig. 1) expandable or contractible in the axial direction of the track member so as to entirely cover the track member in the section perpendicular to the axial direction of the track member, and a portion (14, Fig. 1) of the movable member projecting over the slit of the track member penetrates the cover member.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Nagai in view of Jacob and provide that the track is provided with a cover member expandable and contractible in the axial direction of the track member so as to entirely cover the track member in the section perpendicular to the axial direction of the track member, and a portion of the movable member projecting over the slit of the track member penetrates the cover member for the purpose of protecting of the actuating device from dirt and debris.

Response to Arguments

5. Applicant's arguments filed on December 30, 2010 have been fully considered but they are not persuasive.

Regarding Jacob in view of Teramachi

Applicant argues that "the Examiner relies on Jacob with regard to the feature that a first row of the two rows of the loaded rolling member rolling grooves is positioned in vertical direction with respect to a second row of the two rows of the loaded rolling member rolling grooves" and that "the Examiner acknowledges that Jacobs does not disclose the loaded rolling member rolling grooves", however, the first and second rows are shown by Jacobs. Figure 1 of Jacobs shows multiple rows (5 and 9, for example) of the rolling elements located in a vertical direction. Jacobs simply does not disclose the member having a groove. Teramachi discloses grooves opposing the rolling member rolling grooves of the track. It is clear from the rejection, Figure 1 of Jacobs and Figure 1A of Teramachi, however, that the only thing lacking in Jacobs is the actual loaded rolling member rolling grooves and not the location or multiplicity of the rolling member rows.

Regarding Nagai in view of Jacobs

Applicant argues that "Figs. 1 and 2 of Jacob, the element 2 appears to be a rail to be fixed to a base" and "element 2 appears to be a sliding unit which moves along the rail" and therefore "the sliding unit 1 covers the outside of the rail" which is contrary to Applicant's claims, however, the rail (element 2) is a movable member since it is

movable relative to the ball circulation unit (element 1). Thus, Jacobs is the same as Applicant's claims.

Furthermore, Jacobs is not relied upon for which member is the inner member and which member is the outer member, but rather, the shape of the outer member. Applicant also argues that "if the actuator of Nagai is modified by the disclosure of Jacobs, the slider 18 of Fig. 3 of Nagai would be modified to cover the outside of the guide-equipped frame", however, as stated previously, Jacobs is only relied upon for the outer shape of the outer member. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALAN B. WAITS whose telephone number is (571)270-3664. The examiner can normally be reached on Monday through Friday 7:30 am to 5 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on 571-272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Alan B Waits/
Examiner, Art Unit 3656

/Thomas R. Hannon/
Primary Examiner, Art Unit 3656

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